C.   Amendment to the Claims

The following listing of claims will replace all prior versions.

Listing of claims:

1.   (Original) A wireless gateway for connecting mobile and remote assets or human resources to business enterprise users through multiple wireless networks and the Internet by using web served applications, said gateway comprising:

location aware business logic for sending and receiving location based information to and from remote and mobile assets and an enterprise user, and for applying business logic to said location information to enhance and automate business applications run by the enterprise user,

said business logic providing a common interface and protocol for handling said location information and enabling applications that follow said protocol to interface with said gateway to use said location information to trigger events or to tag events, messages, or other data.

2.   (Original) The wireless gateway of claim 1, wherein said remote assets include at least one handheld portable device operating on a wireless network.

3.   (Original) The wireless gateway of claim 1, wherein said mobile assets include vehicles, and navigation and sensor devices mounted respectively to at least some of said vehicles and operating on a wireless network.

4.   (Original) The wireless gateway of claim 1, wherein said business logic includes means for bundling together of small, frequent data items into large, less frequent data packets

for insertion into a queuing system to accommodate low packet throughput rates of a software queue, for messaging on a wireless network between said remote and mobile assets or human resources and said business enterprise users.

5.   (Original) The wireless gateway of claim 1, wherein said remote and mobile assets include:

at least some hybrid systems, each hybrid system including

a handheld portable device, and

a combined navigation and sensor device mounted to a vehicle,

each of said devices operating on a wireless network.

6.   (Original) The wireless gateway of claim 5, including means for short range wireless connection between said handheld portable device and said vehicle-mounted combined navigation and sensor device of each said hybrid system.

7.   (Original) The wireless gateway of claim 3, wherein said navigation and sensor devices include means for detecting arrival and departure of the respective vehicles to which said devices are mounted, at and from job sites.

8.   (Original) The wireless gateway of claim 7, wherein said navigation and sensor devices include means for reporting said site arrival and departure to an enterprise user on said wireless network via said gateway.

9.   (Original) The wireless gateway of claim **7**, including means for establishing work orders and for communicating instructions from an enterprise user to at least some of said vehicles for dispatching thereof to job sites according to the established work orders.

10.   (Original) The wireless gateway of claim **9**, further including means for automatically deriving work order status from reported site arrival and departure.

11.   (Original) The wireless gateway of claim **8**, wherein said navigation and sensor devices include means for recognizing a job site as being active for a preset time period, during which said reporting of respective vehicle arrival at and departure from said site is maintained, and for discarding information regarding location and status of said site after said time period expires.

12.   (Original) The wireless gateway of claim **2**, wherein said handheld portable device includes logic means for detecting arrival at and departure from a preselected site by said device.

13.   (Original) The wireless gateway of claim **12**, wherein said handheld portable device includes means for automatically reporting said detected arrival at and departure from said preselected site to an enterprise user on said wireless network via said gateway.

14.   (Original) The wireless gateway of claim **3**, wherein said navigation and sensor devices includes logic means for detecting arrival at and departure from a preselected site by respective vehicles to which said devices are mounted.

15. (Original) The wireless gateway of claim 14, wherein said navigation and sensor devices include means for automatically reporting said detected arrival at and departure from said preselected site by their respective vehicles to an enterprise user on said wireless network via said gateway.

16. (Original) The wireless gateway of claim 1, wherein said business logic includes means for bundling frequent asset and resources location reports into large infrequent message packets for reduction of message overhead in messaging between said remote and mobile assets or human resources and said business enterprise users on a wireless network, including sending a full location report followed by reports on changes in location that occupy a comparatively smaller amount of bandwidth.

17. (Original) The wireless gateway of claim 2, wherein said handheld portable device includes logic means for detecting preselected events including type and location of each event encountered by said device during movement thereof, and means for reporting said events to an enterprise user on said wireless network via said gateway.

18. (Original) The wireless gateway of claim 17, wherein said logic means of said handheld portable device includes means for detecting street address or other site location of an event.

19. (Original) The wireless gateway of claim 3, wherein said navigation and sensor devices include means for detecting preselected events including type and location of each event encountered by said respective vehicles during activity thereof, and means for reporting said events to an enterprise user on said wireless network via said gateway.

20.   (Original) The wireless gateway of claim **19**, wherein said detecting means detects street address or other site location of an event.

21.   (Original) The wireless gateway of claim **1**, including an extensible markup language (XML) interface to said wireless gateway for extending the functionality thereof.

22.   (Original) A method for connecting mobile and remote assets or human resources to business enterprise users through multiple wireless networks and the Internet via a wireless gateway by using web served applications, said method comprising:

sending and receiving location based information to and from remote and mobile assets by means of location aware business logic in said gateway, and applying said business logic to said location information to enhance and automate business applications run by an enterprise user, and

providing a common interface and protocol for handling said location information with said business logic for enabling applications that follow said protocol to interface with said gateway and use said location information to trigger events or to tag events, messages, or other data.

23.   (Original) The method of claim **22**, including using at least some handheld portable devices operating on a wireless network as said remote assets.

24.   (Original) The method of claim **22**, including using vehicles with navigation and sensor devices mounted respectively thereto operating on a wireless network as said mobile assets.

25.   (Original) The method of claim **22**, including bundling together small, frequent data items into large, less frequent data packets for insertion into a queuing system to accommodate low packet throughput rates of a software queue, and conducting messaging with said bundled data packets on a wireless network between said remote and mobile assets or human resources and said business enterprise users.

26.   (Original) The method of claim **22**, including using at least some hybrid systems, each hybrid system including a handheld portable device and a combined navigation and sensor device mounted to a vehicle, with each of said devices operating on a wireless network, as said remote and mobile assets.

27.   (Original) The method of claim **26**, including transmitting data via short range wireless connection between said handheld portable device and said vehicle-mounted combined navigation and sensor device of each said hybrid system.

28.   (Original) The method of claim **24**, including detecting arrival at and departure from job sites by said vehicles by means of said respective navigation and sensor devices mounted to the vehicles.

29.   (Original) The method of claim **28**, including reporting said site arrival and departure of each of said vehicles to an enterprise user on said wireless network via said gateway, by means of said respective navigation and sensor devices mounted to the vehicles.

30. (Original) The method of claim **28**, including establishing work orders, and communicating instructions from an enterprise user to at least some of said vehicles for dispatching thereof to job sites according to the established work orders.

31. (Original) The method of claim **30**, further including automatically deriving work order status from reported site arrival and departure.

32. (Original) The wireless gateway of claim **29**, including recognizing a job site as being active for a preset time period by means of said navigation and sensor devices, and maintaining said reporting of respective vehicle arrival at and departure from said site during said time period, and discarding information regarding location and status of said site after said time period expires.

33. (Original) The method of claim **23**, including detecting arrival at and departure from a preselected site by said handheld portable device.

34. (Original) The method of claim **33**, including automatically reporting from said handheld portable device the detected arrival at and departure from said preselected site of said device to an enterprise user on said wireless network via said gateway.

35. (Original) The method of claim **24**, including detecting arrival at and departure from a preselected site by said vehicles by means of said navigation and sensor devices mounted to respective ones of said vehicles.

36.   (Original) The method of claim 35, including automatically reporting from said navigation and sensor devices said detected arrival at and departure from said preselected site by their respective vehicles to an enterprise user on said wireless network via said gateway.

37.   (Original) The method of claim 22, including bundling frequent asset and resources location reports into large infrequent message packets for reduction of message overhead in messaging between said remote and mobile assets or human resources and said business enterprise users on a wireless network via said gateway.

38.   (Original) The method of claim 37, including sending full reports of respective location from said assets or resources followed by at least occasional reports of respective changes in location that occupy a comparatively smaller amount of bandwidth.

39.   (Original) The method of claim 23, including detecting preselected events including type and location of each event encountered by said handheld portable device during movement thereof, and reporting said events to an enterprise user on said wireless network via said gateway with said device.

40.   (Original) The method of claim 39, including detecting street address or other site location of an event with said device.

41.   (Original) The method of claim 24, including detecting preselected events including type and location of each event encountered by said vehicles during activity thereof by means of said navigation and sensor devices respectively mounted thereto, and reporting said events to an enterprise user on said wireless network via said gateway with said devices.

42. (Original) The method of claim **41**, including detecting street address or other site location of an event with said devices.

43. (Original) The method of claim **22**, including interfacing an extensible markup language (XML) interface to said wireless gateway for extending the functionality thereof.

44. (Original) A system for efficient management of transportable assets including vehicles and portable units of a business enterprise constituting a customer of said system, said system comprising:

a wireless gateway,

wireless devices disposed in said assets and connectable to said wireless gateway through at least one wireless data network,

said business enterprise having

asset management apparatus connected by browsers through the Internet to said wireless gateway, and

business applications served over the Internet for processing data for managing said assets,

said wireless gateway including location aware core business logic for tying said assets and said business applications together through a common set of protocols and interfaces for enabling said business applications to use data indicative of location of said assets.

45. (Original) The system of claim **44**, wherein said core business logic and said business applications are implemented at a web site for said wireless gateway.

46.   (Original) The system of claim **44**, wherein said core business logic manages said customer's login accounts and access to location and availability data regarding said assets.

47.   (Original) The system of claim **46**, wherein said core business logic further manages communications between said wireless devices and said business enterprise and access to said at least one wireless network.

48.   (Original) The system of claim **44**, wherein said wireless gateway includes routers for routing data communications between said customer at the business enterprise and said wireless devices through said core business logic, and said core business logic includes a database and interfaces to said business applications.

49.   (Original) The system of claim **44**, wherein said business applications include mapping and text messaging applications tightly coupled to said core business logic for facilitating use of asset and geographic site location information and message routing functions of said wireless gateway.

50.   (Original) The system of claim **49**, wherein said business applications further include work order management and dispatching applications for maintaining work orders and scheduling said assets comprising vehicles at job sites constituting locations where work is to be performed, and said wireless gateway includes means responsive to creation of a job site for storing site location information indicative thereof and means for sending said site location information to vehicles dispatched by said dispatching application to said job site under a work order, each of said vehicles including means for automatically transmitting data to said wireless

gateway indicative of events including vehicle arrival at and departure from said job site, said wireless gateway further including means for transmitting said event-indicative data from said vehicles to said work order management application for automatically changing the status of said work order accordingly, whereby to enable said work order management and dispatching applications to keep track of locations of said vehicles or personnel associated with said vehicles relative to said job site.

51. (Original) The system of claim **50**, wherein at least some of said vehicles include a wireless device comprising a sensor only device mounted thereon and having a short range wireless interface.

52. (Original) The system of claim **49**, wherein said mapping application includes street level map data and map control application, and said business enterprise includes a local computer with said street level map data and map control application resident thereon and an application server with a data channel for providing asset location information therethrough directly from said application server to said mapping application, for seamless location data updates and smooth interaction with said map and said assets depicted thereon and with Internet delivery of code and map database updates.

53. (Original) The system of claim **52**, further including means for initiating mapping functions from others of said business applications and initiating functions of at least some of said other business applications from the mapping interface of said mapping application.

54. (Original) The system of claim **52**, wherein said data channel is further adapted to transmit procedure calls to and from others of said business applications and said core business logic.

55. (Original) The system of claim **49**, wherein said assets comprise vehicles each including at least one of said wireless devices mounted therein, each of said vehicles further including means for detecting and reporting location data in the form of geodetic position, along with speed and heading of the respective vehicle, to said business enterprise through said wireless gateway and said messaging application from the respective wireless device periodically and, together with other data, in response to sensing of events encountered by said vehicle.

56. (Original) The system of claim **55**, wherein said location data in the form of geodetic position, along with speed and heading is stored in the said database at said business enterprise, and said mapping application displays each said position as the corresponding data are received and further displays historical location data when requested.

57. (Original) The system of claim **55**, wherein said event reports are tagged to vehicle location in real time, said event reports including speeding exceptions, unauthorized stops, text messages initiated by field personnel, and automated status reporting such as arrival at a job site by the respective vehicle.

58. (Original) The system of claim **55**, wherein said wireless gateway includes means for guaranteeing delivery of said reports.

59. (Original) A method for efficient management of transportable assets including vehicles of a business enterprise, comprising the steps of:

placing wireless devices in said assets for connection to a wireless gateway through at least one wireless data network,

connecting asset management apparatus of said business enterprise to said wireless gateway by browsers through the Internet, for serving business applications of said business enterprise over the Internet to process data for managing said assets,

providing said wireless gateway with location aware core business logic for tying said assets and business applications together through a common set of protocols and interfaces, whereby to enable said business applications to obtain data indicative of location of said assets.

60. (Original) The method of claim **59**, including managing login accounts of said business enterprise and access to location and availability data regarding said assets of said business enterprise, with said core business logic.

61. (Original) The method of claim **60**, further including managing communications between said wireless devices and said business enterprise and access to said at least one wireless network with said core business logic.

62. (Original) The method of claim **59**, including routing data communications between said business enterprise and said wireless devices via said wireless gateway through said core business logic.

63. (Original) The method of claim 59, including:

storing information at said wireless gateway indicative of location of a job site designated by work order management and dispatching applications of said business applications for maintaining work orders and scheduling said vehicles where work is to be performed,

sending said stored job site location information from said wireless gateway to vehicles dispatched by a dispatching application to said job site under a work order, and

transmitting data via said wireless gateway indicative of events sensed by said vehicles including vehicle arrival at and departure from said job site, to a work order management application for updating said work order accordingly, whereby to enable said business enterprise to maintain an ongoing record of the state of completion of scheduled work of each vehicle relative to said job site.

64. (Original) The method of claim 63, including mounting a sensor only device as the wireless device with a short range wireless interface in at least some of said vehicles.

65. (Original) The method of claim 59, including:

providing a mapping application as one of said business applications and a local computer at said business enterprise with said street level map data and map control application resident thereon and an application server with a data channel for providing asset location information therethrough directly from said application server to said mapping application, to permit seamless location data updates and smooth interaction with said map and said assets depicted thereon and with Internet delivery of code and map database updates.

66. (Original) A method of communicating between a business enterprise and remote mobile assets of the business enterprise outfitted with wireless devices, through multiple wireless networks and the Internet, said method comprising:

establishing a wireless gateway with location aware business logic for enhancing said communication using web served business applications run by said business enterprise, and

providing a common interface and protocol for communicating location based information to and from the wireless devices of said remote mobile assets and said business enterprise via said location aware business logic to enable said business applications that follow said protocol to interface with said wireless gateway.

67. (Original) The method of claim 66, including employing event sensors of said wireless devices with a short range wireless interface in at least some of said mobile assets, and using said location based information to trigger sensing of events or to tag events, messages, or other data communicated between the wireless devices of said remote mobile assets and said business enterprise.

68. (Original) The method of claim 66, including communicating frequent periodic reports of location based information from said mobile assets by bundling said reports into large packets for less frequent transmission via said wireless gateway.

69. (Original) The method of claim 68, including using a user datagram protocol for transmitting said report packets, together with a limited guaranteed delivery protocol therefor.

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70.   (Original) The method of claim **68**, including organizing data to be included in said reports into groups for summary reporting.

71.   (Original) The method of claim **66**, including limiting queries by users in said business enterprise to said mobile assets to obtain data therefrom to a selectable time range and to data items for which the respective user has authorized access from said business enterprise.

72.   (Original) The method of claim **66**, including displaying locations of at least some of said mobile assets on a map within a web browser connected to a web server of said business enterprise, where data pertaining to said mobile assets are pushed to a map controlling application among said business applications within said browser using a connection to a second server that provides said mobile asset data.

73.   (Original) The method of claim **72**, including storing map data on a local computer of the business enterprise running said web browser, and updating the map data automatically when new information becomes available on said web server.

74.   (Original) The method of claim **72**, including storing said map controlling application on a local computer of the business enterprise running said web browser, and updating the map controlling application automatically when new software therefor becomes available on said web server.

75. (Original) The method of claim **72**, wherein at least some of said mobile assets are vehicles to be dispatched to and from job sites where work or storage is to be performed in a geographic territory of interest to said business enterprise, and including:

storing information at said wireless gateway indicative of location of a job site designated by work order management and dispatching applications among said business applications for maintaining work orders and scheduling said vehicles relative to said job site,

transmitting said stored job site location information from said wireless gateway to vehicles dispatched by a dispatching application to said job site under a work order, and

relaying data via said wireless gateway from said vehicles indicative of sensed events including vehicle arrival at and departure from said job site, to a work order management application for automatically changing the status of said work order accordingly, whereby to enable said business enterprise to track locations and status of said vehicles relative to said job site.

76. (Original) The method of claim **75**, including bandwidth reducing periodic reporting of location based information from said mobile assets by data compression and packet bundling to lessen frequency of report transmissions to said business enterprise via said wireless gateway.

77. (Original) The method of claim **76**, including using a user datagram protocol for said report packets, and a limited guaranteed delivery protocol therefor by attempting delivery of messages for a predetermined period of time and upon expiration of said time period without successful delivery of a message, notifying the user thereof.

78. (Original) The method of claim **76**, including organizing data to be included in said reports into groups for summary reporting.

79. (Original) The method of claim **75**, including organizing and maintaining data regarding type, capability and status of each vehicle for said work order management application.

80. (Original) The method of claim **79**, including using said location aware business logic in said wireless gateway in conjunction with data obtained from said wireless devices regarding type, capability and status of each vehicle to obtain unit, type, historical summaries, and historical trend analyses for a fleet of vehicles operated by said business enterprise.

81. (Original) The method of claim **67**, wherein at least some of said mobile assets are vehicles, and including sensing of speed, distance, and heading from vehicle navigation, and sensing equipment utilization of the vehicles, and transmitting sensed data via said wireless devices.

82. (Original) The method of claim **67**, wherein at least some of said mobile assets are vehicles, and including sensing and reporting selected events generated by vehicle sensors via said wireless devices over a predetermined time duration, and creating groups of reported events by selecting a start event and an end event of events to be reported.